The American Atlas of Stereoroentgenology

A QUARTERLY

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The American Atlas

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A QUARTERLY

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WITH ASSOCIATES AND CORRESPONDENTS THROUGHOUT THE WORLD

THE SOUTH
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The American Atlas of Stereoroentgenology

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FRACTURE OF SACRUM

By THOMAS A. GROOVER, M. D., Washington, D. C.

J. H., Female, White, U. S., age 21 years. Referred by Dr. H. S. LEWIS

PRESENT History—Patient was knocked down by an automobile, and one or more wheels are supposed to have passed over her body.

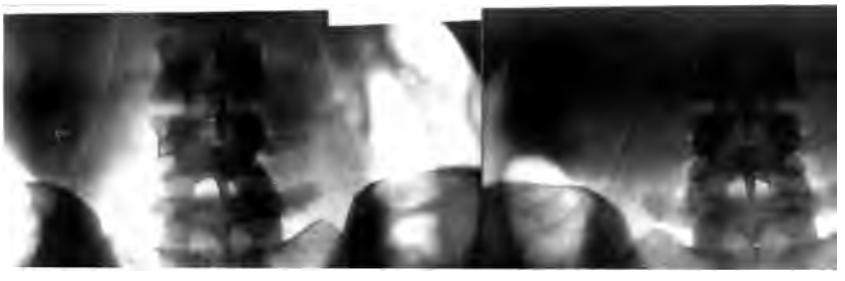
¶ Physical Examination—There are some minor bruises about the trunk and limbs. There is markedly acute localized tenderness over the lower portion of the sacrum. Practically all of the patient's discomfort is referred to the sacral region.

¶ Roentgenographic Examination—There is a linear fracture of the last segment of the sacrum, with practically no displacement. A small fragment appears to be broken from the ilium at the inferior margin of the right sacro-iliac joint.

¶ Remarks: The patient was treated by strappin
adhesive plaster and rest in bed. Complete recovery

Fracture of Sacrum

Stereo 58 **Serial No**



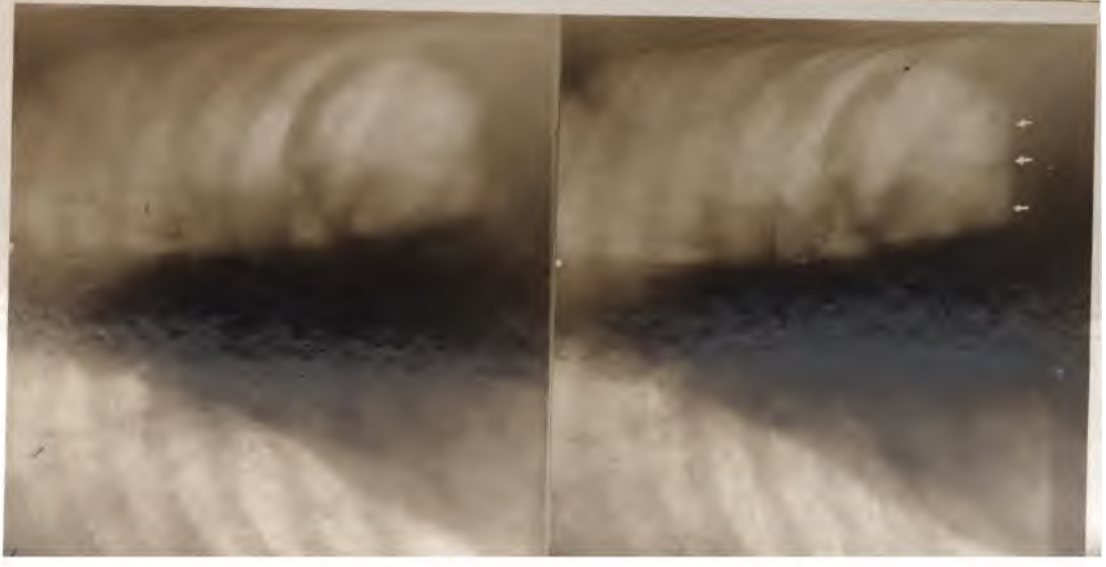
LARGE BRONCHIECTATIC CAVITY

By G. E. Pfahler, M. D., Philadelphia

LARGE Bronchiectatic Cavity with typical symptoms of bronchiectasis. Expectoration of large quantities of fluid at intervals, which fluid showed the classical layers. Stereoscopic plates were made with the patient standing. Note the level of the fluid, as indicated by the arrows in one of the plates.

Large Bronchiectatic Cavity

Stereo 59 **Serial Nº 111**



CYLINDRICAL BRONCHIECTASIS

By E. W. Caldwell, M. D., New York
By H. M. Imboden, M. D., New York

J. B., male, age 40 years. Referred by Dr. H. A. Auchincloss

PATIENT for over twenty years has had a cough and what he terms "asthma." In the winter it becomes worse and in the summer he feels very much better. He is a gardner by occupation, works in the air almost all day and for that reason has probably kept himself in very good shape. He sometimes has fever and has a considerable amount of sputum when he has his real attacks during the winter. For this reason he has decided to migrate to Southern California. His physical signs showed a very much diminished expansion of right chest with dullness and patchy broncho vesicular voice and breathing with many rales over the lower portion of right chest, anteriorly and posteriorly. His left lung is quite sound. There is but slight clubbing of fingers. Sputum on careful search for tubercle bacilli shows none. He is a thin man but is wiry and strong and is a Pole. He has a good color, and were it not for the cough and so-called "asthma," which he claims is the most marked symptom, he would feel that he was in perfect health.

¶ The Roentgen examination shows changes in the shadows of the lower portion of the right lung, which we think are due to bronchiectatic cavities.

Showing Changes in the Shadows of Right Lung

Stereo 60 **Serial No. 111**

AIR IN THE CRANIUM

By H. M. Imboden, M. D., New York

Mr. J., age 62 years. Occupation—tailor. Referred by Dr. H. D. Johnson

DIAGNOSIS—Air in the cranium.

¶ October 6, 1916, while engaged in his usual occupation, he was hit on the head with a hammer by a burglar. He was unconscious for two hours and taken to a hospital. A Roentgen examination at the time showed a depressed comminuted fracture of the skull. He was operated on October 11. Several pieces of bone were removed. The dura was torn and rubber tissue was used to replace it. He left the hospital in three weeks. Recovery was uninterrupted. A sinus remained, which discharged a serous fluid. The rubber tissue was not removed. About November 4, he had an epileptoid seizure. A week before he had slight dizziness.

¶ By Roentgen examination made November 8, we found a shadow of diminished density in the upper portion of the cranium, which we think indicates a displacement of the brain by air. This shadow is immediately beneath the site of the fracture. In this shadow is a linear one of increased density, which we think is due to thickened dura, projecting forward into the air space. There is also a shadow of a loose piece of bone.

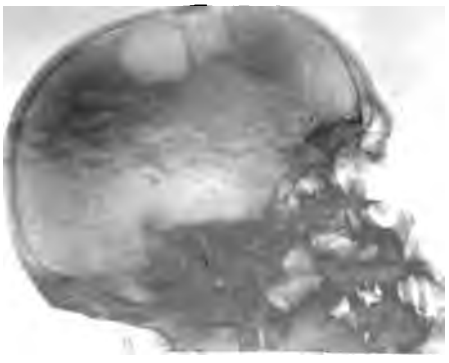
¶ Subsequently he discharged a piece of bone and then the sinus closed. No operative procedure was resorted to, to relieve the air.

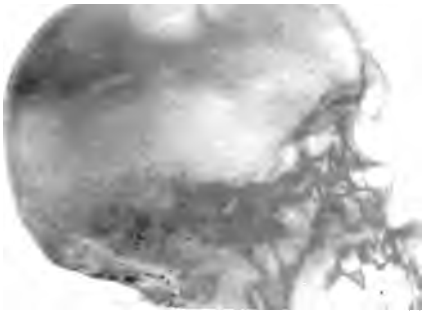
¶ A Roentgen examination made on December 7, shows the air completely displaced, apparently by brain tissue. The shadow of loose bone seen at the previous examination was not found.

¶ The patient has gained weight. His present condition is very good, and he has had no further epileptoid seizures.

Air in the Cranium

Stereo 61 **Serial Nº 111**





PRIMARY LUNG TUMOR

By Howard E. Ruggles, M. D., San Francisco.

CONSULTED her physician because of a cold. Routine examination of the chest revealed an area of dullness with signs of consolidation in the left upper lobe. A history of slight hemoptysis sometime previously, was then obtained.

¶ Roentgen examination at that time showed a dense shadow projecting upward from the left hilus, which did not pulsate, but showed a slight excursion on respiration. The original plates show the mass apparently distinct from the heart. Diagnosis of primary lung tumor was made.

¶ Three months later the right thumb became somewhat painful and swollen and amputation was performed. The pathological report on the material removed was—"Bone of distal phalanx and soft tissue about it infiltrated by soft, grayish tumor. Sections show many large, well defined areas, which are filled with large polygonal cells of epithelial type, containing clear homogeneous protoplasmic bodies and large, deeply staining nuclei. The tumor may be either metastatic carcinoma or primary sarcoma of the bone."

¶ Massive radiation was administered to the chest for a period of seven months without appreciable effect on the tumor or the clinical course of the process. The patient

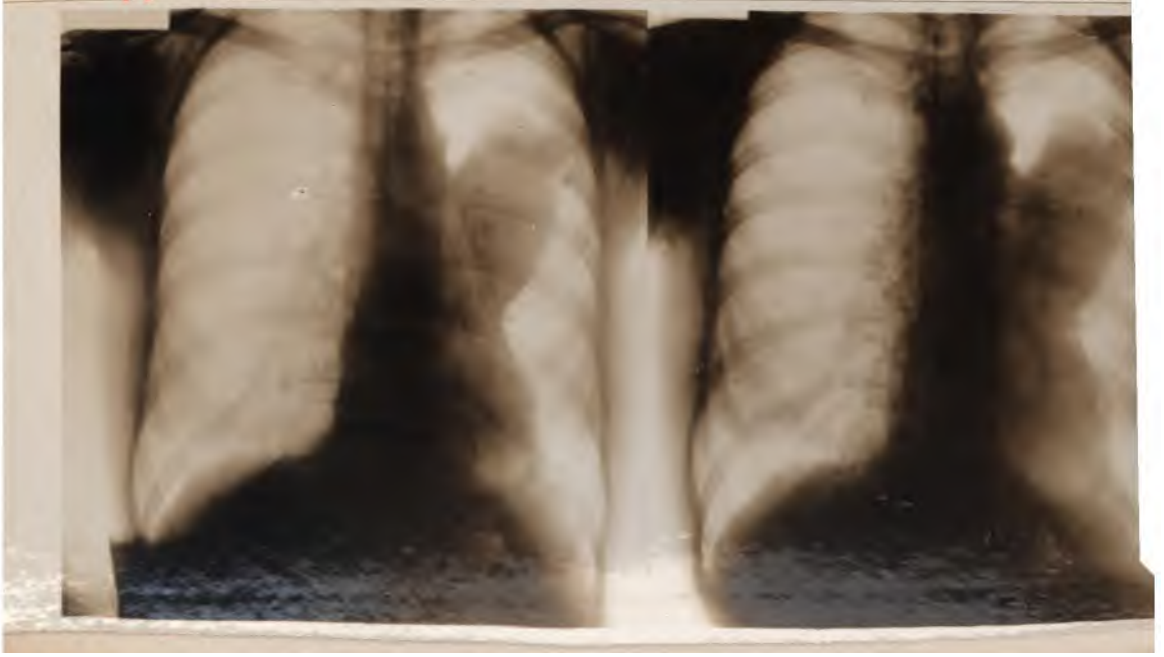
gradually lost weight, became progressively weaker and cachectic and died eighteen months after the first observation.

¶ No further distribution of the process was found at any time and Roentgen examination showed little change beyond a gradual increase in the growth and finally a left-sided effusion.

¶ Post-mortem, unfortunately could not be obtained.

Primary Lung Tumor

Stereo 62 **Serial Nº 111**



MYOSITIS OSSIFICANS

By W. H. Stewart, M. D., New York

J. L., U. S., male, age 8 years. Referred by Dr. Louis Friedman

FAMILY History—Negative.

¶ Past History—Whooping cough and measles when three and one-half years old, no complications.

¶ Present History—At the age of three and one-half years, shortly after the attack of whooping cough, mother noticed a small, painless soft mass in the right side of the neck, which became progressively larger. He was examined by a physician who thought it was an abscess, but upon opening no pus was obtained. Within a week after this, the child complained of having pains all over the body, all movements being limited and painful. This continued for about two weeks, when it was noticed that the child could not raise its right arm more than at right angles to the body; this became progressively worse. At the same time the left arm also showed some limitation of motion. About four months after the onset of the trouble, the mother noticed lumps in the back, which were becoming larger and larger; these swellings were not painful or tender. At the age of five years, he was so weak that he could hardly stand, or walk, if not constantly supported, as a result, he sustained many lacerations and abrasions of the scalp

and other parts of the body. At the present time he is unable to move the shoulder joints beyond an angle of forty-five degrees; he is unable to flex the left elbow, but the right is unimpaired. There is marked rigidity of the neck and back.

¶ Physical Examination—Marked ossification of all the muscles of the back was found; these ossified areas present transverse ridges on either side. All the shoulder muscles are apparently ossified. The biceps of the left arm as well as the lower portion of the tendon of the quadriceps of the left thigh are. Abdominal muscles, muscles of mastication and expression and those of the right involved, thigh and legs are unaffected.

¶ Laboratory Reports show urine negative. Blood count:

Ossified Ridges Across the Back

Stereo 63 **Serial Nº 111**

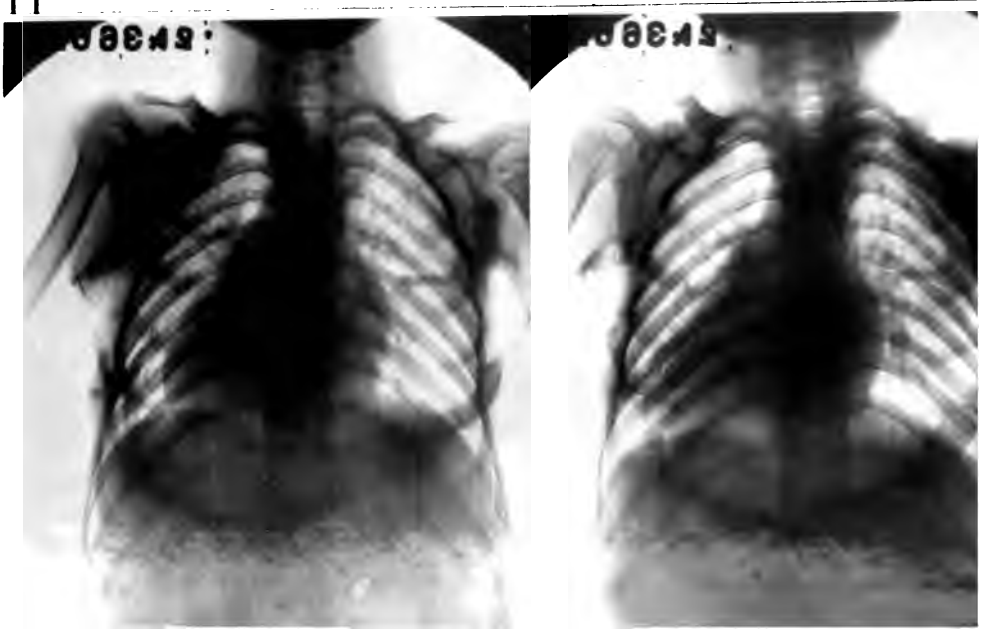


Fig. 1

Leucocytes 16000; Polys. 60 per cent. Throat culture negative. Von Pirquet negative.

¶ Stereoroentgenographic examination reveals ossified ridges across the back involving all the muscles. This ossification extends forward on either side of the chest, bridging over at the axilla from the pectoral muscles to the muscles of the arms which almost completely fixes the upper extremities. The same process is seen around the left elbow joint and at the quadriceps tendon on the left thigh. Diagnosis—Myositis Ossificans.

SYPHILIS OF THE STOMACH

By W. H. Stewart, M. D., New York.

L. P., Italian, male, age 38 years. Referred by Dr. Louis Friedman

FAMILY History. Negative.

¶ Past History. Negative. Venereal disease denied.

¶ Present Illness. Patient came into the hospital complaining of a pressing pain in the epigastrium and right hypochondrium, coming on immediately after meals. He was perfectly well until about two years ago when these symptoms began. At times the pain occurs before meals, and is aggravated by eating; it is occasionally accompanied by vomiting. No blood in vomitus or stools. There are periods of from one to two weeks when he is entirely free from symptoms. He lost eighteen pounds in weight during the past year. There is considerable tenderness and pain on deep pressure at the right costal margin, just at the edge of the rectus; no rigidity or palpable masses. Ewald's test meal showed delayed digestion, considerable mucus with no free hydrochloric acid.

¶ Roentgen examination, made just before the patient entered the hospital, showed a distinct hour-glass contraction in the middle third of the stomach; an indenture on the greater curvature, funnel shaped and persistent; there was no evidence of peristalsis above the contraction, below the waves were normal.

¶ Surgical Findings. A few adhesions at the pyloric end of the stomach were found with a patent pylorus. From the cardia down to the mid-portion of the stomach the gastric walls were markedly thickened and noticeably pale in color. Incision into the interior surface with exploration failed to reveal any evidence of ulcer. A small section of the thickened stomach wall was removed and the incision closed. The surgeon was suspicious at the time of the operation that he was dealing with a luetic condition.

¶ Blood examination, made on two different occasions, after operation, showed a four plus Wasserman.

¶ Pathological Report. The small piece of tissue from the gastric wall shows marked thickening of the submucosa and subserosa due to fibrous tissue hyperplasia. This

Distinct Hour-glass Contraction in the Stomach

Stereo 64 **Serial No. 111**

tissue contains several small, thick-walled blood vessels, showing perivascular infiltration of round cells suggestive of syphilis.

¶ Comment. A positive diagnosis cannot be made from the specimen alone. The case may be a scirrhous carcinoma with little or no cells or a luetic plastica.

¶ Further fluoroscopic and stereoroentgenographic studies, made after the operation, revealed the same narrowing in the middle third of the stomach, thickened walls, and lack of normal contractions. This thickening had involved the cardia so that considerable dilatation of the lower segment of the oesophagus was seen. The defect in the stomach outline was persistently funnel shaped on the greater curvature; below this point, peristalsis was apparently normal.

SPONTANEOUS PNEUMOTHORAX

By Leon T. LeWald, M. D., New York.

Major, Medical Reserve Corps, U. S. Army; Director of the Roentgen Department at St. Luke's Hospital and of Gibbs X-ray Laboratory; Professor of Roentgenology at New York University and Bellevue Hospital Medical College.

J. C., male, age 16 years. Occupation—messenger boy.

WHILE running in the street, he collapsed suddenly, and, on being questioned, complained of extreme shortness of breath. He lost consciousness, but became conscious after a short time. On recovering, he complained of pain in the back and right side of chest. He was taken to a hospital, where he remained one day, but the case was not then diagnosed as pneumothorax. Three weeks later he was admitted to St. Luke's Hospital, still complaining of shortness of breath on exertion and a dry cough. On questioning, no history could be obtained of his having spat up blood or of having a previous illness suggesting lung trouble.

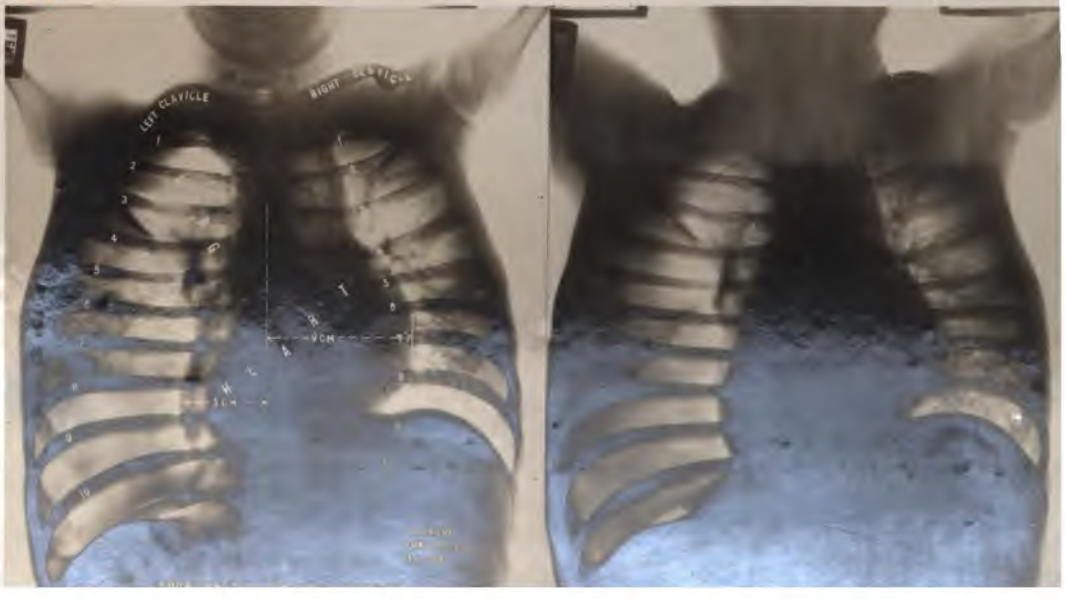
¶ X-ray examination at once revealed the true nature of the trouble—pneumothorax involving the left side of the chest, causing the left lung to appear to be pressed inwards and upwards. The heart is displaced to the right. There is no evidence of either old or active pulmonary tuberculosis.

¶ Treatment—Chest was aspirated with ordinary aspirating apparatus. Immediate improvement followed and eleven days later X-ray examination showed the collapsed lung entirely expanded and all air out of the pleura cavity.

¶ This case is of extreme interest in view of the spontaneous nature of the pneumothorax. In the days before X-ray examinations were common, a case of pneumothorax was almost invariably recorded as a complication of tuberculosis of the lungs and was given a bad prognosis. In the light of present knowledge, the X-ray diagnosis of pneumothorax is one of the most clear in all X-ray work. And the further evidence given as to whether the pneumothorax is spontaneous or a complication of tuberculosis can be positively determined, and if the condition is of a spon-

Pneumothorax Involving the Left Side of the Chest

Stereo 65 **Serial No. 111**



taneous nature, a very favorable prognosis and assurance of complete recovery inside of a few weeks can be given. The result of treatment can be absolutely checked by the X-ray.

¶ In the military service the X-ray diagnosis of spontaneous pneumothorax is of the greatest importance, for, without question, there will be a number of these cases in the service caused by violent exercise, such as "going over the top," etc. Without X-ray examination, the case might be wrongly diagnosed as of tuberculous nature and sent home, whereas after accurate diagnosis, as made by means of the X-ray, the patient should only be sent to a base hospital, from where he could be returned to the firing line in a few weeks.

MEGACOLON

By Leon T. LeWald, M. D., New York

Major, Medical Reserve Corps, U. S. Army; Director of the Roentgen Department at St. Luke's Hospital and of Gibbs X-ray Laboratory; Professor of Roentgenology at New York University and Bellevue Hospital Medical College.

L. M., male, age 7 years and 10 months.

CHILD has had distended abdomen since six months of age. The bowels do not move without cathartics or enemata. The digestion appears to be good. One physician who saw the child made a diagnosis of a congenital condition of the colon and advised against operation. He thought that at seven years of age the child would get over condition, but that has not taken place.

¶ X-ray examination without the administration of any opaque substance at once gives a clue to the diagnosis, owing to the enormous amount of gas in the colon. The case appears to be one of megacolon or Hirschbrungs disease. The diaphragm on each side reaches up to an abnormally high position amounting to a bilateral eventration of the diaphragm. The amount of gas in the region of the hepatic flexure is so much in evidence that it entirely obliterates the liver shadow when exposures are made with the patient standing and the plate placed in front of the abdomen. This illustrates a peculiarity in the X-ray exposure that might lead to a wrong conclusion, namely,

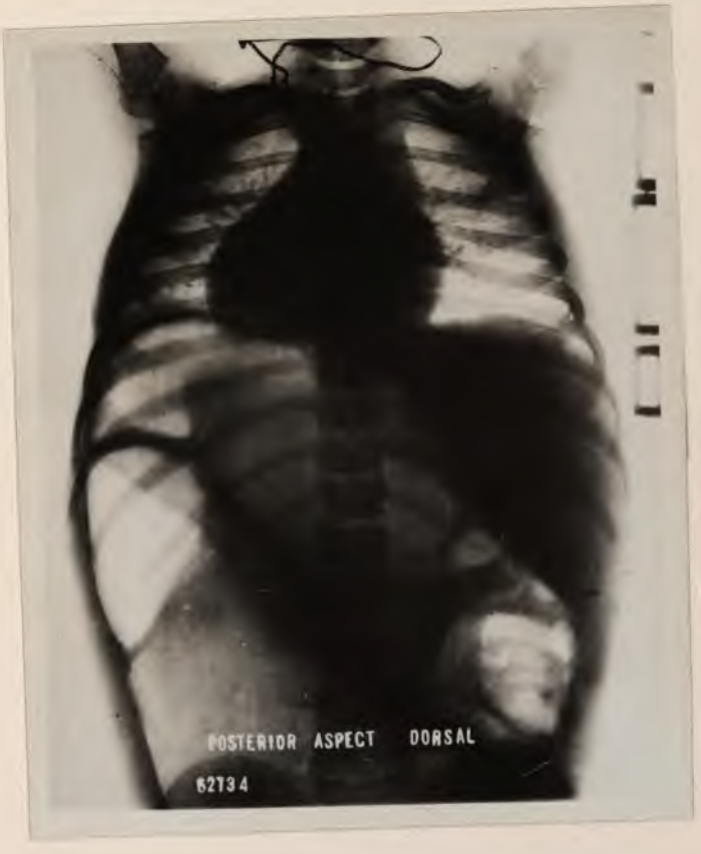


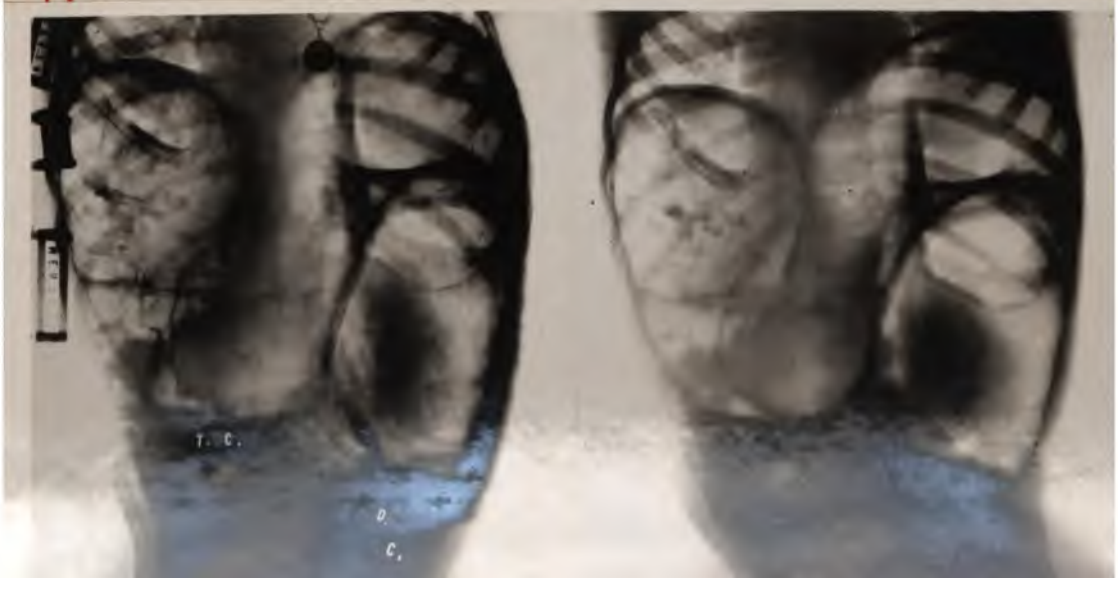
Fig. 1
Liver Shadow now evident. Compare with Stereo 66, in which the liver shadow is not seen.

that the liver was absent or displaced downwards. However, if one makes control examination with the patient in the dorsal position and the plate posterior, the liver shadow can be distinctly made out in the usual location. (See Fig. 1.) The question of the presence or absence of the liver shadow might also be determined by a careful fluoroscopic examination in various positions and with variation in penetration.

¶ At times one may make use of this peculiar penetration of air or gas by the X-ray, where one wishes to afford great contrast, as in looking for a stone or tumor in the bladder by injecting sterile air into the bladder by means of a catheter. Advantage can sometimes be taken of a similar procedure by attempts to outline the gall bladder by means of injecting air in the bowel by means of a rectal tube.

A Bilateral Eventration of the Diaphragm

Stereo 66 **Serial Nº 111**



Another use for this method has been suggested, namely, injecting sterile air into the ureter in order to outline the pelvis of the kidney, but this procedure is very little, if ever, used at present, in view of the more certain procedure of injecting thorium solution through the ureter.

¶ After the administration of an opaque meal, the stomach is found pushed upwards moderately and keeps its position between the dilated splenic flexure and hepatic flexure. The stomach itself is somewhat dilated, but empties in average time. The small intestine empties itself in average time. The cecum and first portion of the ascending colon are about average in size and position. The colon then begins to show dilatation, which becomes extreme at the hepatic flexure, averaging in diameter nearly six inches in this region. The transverse colon is only slightly dilated—about one and one-half times normal. The splenic flexure shows an enormous dilatation, commensurate with that of the hepatic flexure. The descending colon retains the dilatation about as in the splenic region. The pelvic colon is relatively short, but retains the dilatation noted in the descending colon. The rectum is about normal in caliber. The colon eliminates the opaque meal very slowly, so that at the end of five days it still contains a considerable amount. (See Stereo 66.)

¶ Injection of the colon by means of an opaque solution confirms the findings and gives increased information in regard to the apparently normal size of the rectum, thus offering some indication for treatment, namely, dilatation of the sphincter.

¶ The question of operative treatment in a case of this sort merits careful consideration. One is tempted to suggest the resection of the entire colon and the anastomosis

of the terminal ilium with the rectum. On account of the high mortality following this operation at present, the procedure does not seem warranted.

¶ The resection of a portion of the colon might be considered as a conservative operation. A colostomy might be done as an emergency procedure in case of sudden extreme dilatation or obstruction, or as a preliminary operative step several months before a colectomy.

¶ This case, curiously enough, does not show that extreme evidence of intestinal intoxication that one would be led to expect. This may be explained by the dilatation being of congenital nature associated with the absence of usual absorptive powers of the normal colon.

¶ If this case is carefully treated by means of colon irrigations and proper dieting, the patient may go on to late in life without extreme suffering. The writer has a similar case under observation in a man nearly fifty years of age, and another case in a boy ten years of age.

Megacolon

Stereo 67 **Serial No. 111**